

REMARKS

The present response is intended to be a full and complete response to the Office Action mailed June 17, 2009. Claims 11 to 20 are pending in the present application.

Applicants respectfully request continued examination of Claims 11 to 20 and allowance of all pending claims.

Drawings:

The drawing is objected to because it is unclear what stream in heat exchanger 1 feeds into the line leaving the heat exchanger for turbine 9. The drawing has been amended accordingly. No new matter has been added.

Support for this may be found in the abstract where it states that:
“... *the second portion of air is boosted in a booster (8); this air is cooled in the exchange line; it is divided into a first fraction and second fraction; the first fraction of air is cooled in the exchange line; it is at least partially liquefied and then sent to the medium pressure column and/or the low pressure column; the second fraction of air is expanded in a Claude turbine (9) and is fed to the medium pressure column ...*” (emphasis added)

Claim Rejections Under 35 U.S.C. § 112:

Claims 11 - 20 stand rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 11 has been amended to better define the invention, and in so doing, has removed the ambiguity regarding “the second portion”.

Claim Rejections Under 35 U.S.C. § 103:

The Examiner rejects Claims 11 to 20 and 18 to 24 under 35 U.S.C. § 103(a) as being unpatentable over Corduan et al’ 504 in view of Hogg et al ’391. This rejection is respectfully traversed.

The Examiner notes that Corduan et al '504 fails to disclose the use of a Claude expander or feeding the now expanded stream to the medium pressure column. The Examiner the suggests that Hogg '391 remedies this deficiency.

Applicants respectfully submit that there is no motivation to combine this secondary reference with the primary reference. Applicants argue that while it may seem, with the assistance of hindsight, that it would have been obvious to try such a combination, there would have been little reason to presume success and hence such a combination would not have been obvious to one skilled in the art.

Corduan 'et al' 504 *does* pressurize a side stream of feed air, cool it, and then send it through an expander. Since this expanded cryogenic air is sent to the LP column it is not technically a Claude turbine, but the designer of this system (and the skilled artisan reviewing this patent) would recognize that the decision could easily have been made at the time to have (at least optionally) sent this stream to the MP column. Hence, arguably, it was not obvious then and is not obvious now, to modify this particular cycle accordingly.

It is noted in Hogg et al. '391 that:

"As mentioned above, in a Claude cycle there is an energy penalty because most of the air must be compressed above the operating pressure range of the higher pressure column. Equipment and energy costs savings are realized in the subject invention by the integration of a mixing column with the air separation plat in which a supplemental refrigerant stream is utilized to both vaporize the product stream and to supply a portion of the required plant refrigeration." (Column 3, lines 9 – 16).

The mixing column in Corduan 'et al '504 serves a different purpose than that in Hogg et al. '391 and hence it would not have been obvious to the skilled artisan to substitute a portion of one cycle for a portion of another. In Corduan et al. '504 the above referenced energy penalty is not realized since the inlet stream was not elevated to such a high pressure. Therefore, in Corduan et al' 504, there was no need for such efficiency remediation, and hence the mixing column in Corduan 'et al '504 does not vaporize the product stream, but vaporizes an intermediate stream that is sent to the LP column.

The skilled artisan would find no motivation to combine Corduan et al' 504 with Hogg et al. '391. Thus the present invention is not rendered obvious by this combination. Hence the rejection is improper and should be vacated.

CONCLUSION

In view of the above, Applicants maintain that Claims 11 to 20 are now in condition for allowance. Early notice to this effect is earnestly solicited. Should the Examiner believe a telephone call would expedite the prosecution of the present application, the Examiner is invited to call the undersigned attorney at the number listed below.

Applicants do not believe that any fee is due at this time. However, in the event that any additional fees are due, the Commissioner is authorized to debit deposit account number 01-1375 for the amount due. Also, the Commissioner is authorized to credit any overpayment with regard to the present response to deposit account number 01-1375.

Respectfully submitted,

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